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[002] FIELD OF THE INVENTION

[003] The present invention relates to a method for identification and control of the handling of keys and the like. The invention also relates to an apparatus for carrying out the method.

[004] SUMMARY OF THE INVENTION

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[011] BRIEF DESCRIPTION OF THE DRAWINGS

[012] The invention will now be described, by way of example, with reference to the accompanying drawings in which:

[019] DETAILED DESCRIPTION OF THE INVENTION

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11. (NEW) A method of identification and control of handling of keys, the method comprising the steps of:

associating each key with an identification and control device (3);

which is used with a pin-like, hollow shell (26), in which a printed circuit card (42) and a chip (43) are mounted, and loading the chip (43) with a unique code for each identification and control device (3), and

which is inserted into a hole (23) in the local control unit (2),

which is connected to a control center (4),

into which an identification code of the user being fed;

with transmission of the code to the unit (2),

from the printed circuit card (42) and the chip (43) of the device (3) and via contact means (19) information is sent to the printed circuit card (18) of the local control and indication unit (2), and

in which control center (4) and unit (2), respectively, removability and reinsertion, respectively, of each control device (39) are registered and indicated, respectively,

the control and indication unit (2) is mounted in a key cabinet or the like, locked by a code lock,

into which a personal code is fed by the user in order to be able to open the cabinet,

in addition to a release of the door to the key cabinet or the like, a signal to the printed circuit card (18) of the unit (2) being forwarded, for each insertion position (23) for an identification and control device (3) authorization and/or non-authorization being indicated, particularly by a diode lamp (25) showing a green light for authorization and a red light for non-authorization,

when one or several keys are removed with authorization, a signal is sent via the printed circuit card (18) of the unit (2) to the control center (4) having a central printed circuit card, in which the removal is registered and stored,

when a removal without authorization is done, an alarm signal in a similar way is sent to the center and forwarded to e.g. an alarm device,

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up to the return of the key/the keys or the like, it/they and/or the attached identification and control device (3), when e.g. a door is unlocked, will send a signal, which is registered in the center and/or another center,

when the key/the keys or the like is (are) returned, associated diodes will emit light, when the user has given his code, in order to indicate, where the key/the keys is (are) to be inserted, which also will be registered in the center,

via any of the centers, possibly via a connected PC, in each phase it is possible to control, who has removed which keys, and possibly also to determine the point of time for a removal, an unlocking, a locking, a return etc., preferably also security functions being integrated, e.g. a return of keys before a certain specified point of time.

12. (NEW) An apparatus (1) for carrying out the method for identification and control of handling of keys according to claim 11, wherein

each key or the like is associated to an identification and control device (3),

which is used with a pin-like, hollow shell (26), in which a printed circuit card (42) and a chip (43) are mounted, the latter being loaded with a unique code for each identification and control device (3), and

which is inserted into a hole (23) in the local control unit (2),

which is connected to a control center (4),

into which an identification code of the user being fed

with transmission of the code to the unit (2),

from the printed circuit card (42) and the chip (43) of the device (3) and via contact means (19) information is sent to the printed circuit card (18) of the local control and indication unit (2), and

in which control center (4) and unit (2), respectively, removability and reinsertion, respectively, of each control device (39) are registered and indicated, respectively,

the control and indication unit (2) is mounted in a key cabinet or the like, locked by a code lock,

Into which a personal code is fed by the user in order to be able to open the cabinet,

in addition to a release of the door to the key cabinet or the like, a signal to the printed circuit card (18) of the unit (2) being forwarded, for each insertion position (23) for an identification and control device (3) authorization and/or non-authorization being indicated, particularly by a diode lamp (25) showing a green light for authorization and a red light for non-authorization,

when one or several keys are removed with authorization, a signal is sent via the printed circuit card (18) of the unit (2) to the control center (4) having a central printed circuit card, in which the removal is registered and stored,

when a removal without authorization is done, an alarm signal in a similar way is sent to the center and forwarded to e.g. an alarm device,

up to the return of the key/the keys or the like, it/they and/or the attached identification and control device (3), when e.g. a door is unlocked, will send a signal, which is registered in the center and/or another center,

when the key/the keys or the like is (are) returned, associated diodes will emit light, when the user has given his code, in order to indicate, where the key/the keys is (are) to be inserted, which also will be registered in the center,

via any of the centers, possibly via a connected PC, in each phase it is possible to control, who has removed which keys, and possibly also to determine the point of time for a removal, an unlocking, a locking, a return etc., preferably also security functions being integrated, e.g. a return of keys before a certain specified point of time.

13. (NEW) The apparatus according to claim 12, wherein the control and indication unit (2) preferably is designed as a strip for a plurality of identification and control devices (3), which have a fastener (29) at their end for one or several keys, in that the unit (2) comprises a frame work (5), U-shaped in cross-section and preferably made of metal sheet, in which the longitudinal edges of the legs (11, 13) end in narrow flanges (6), extending in opposite directions in relation to each other and having a few additional projecting eyes (7), designed to receive screws or the like for the fastening of the unit to a wall, in that in the U-profile a fastening profile (8) is inserted having the same length, in that the substantially L-shaped fastening profile has a base leg (9), which lies in the same plane as the flanges (6), to the free longitudinal edge of this leg a bearing leg (10), which is shorted in profile, being connected, designed to abut the

inner side of one of the legs (11) of the frame work, in that the second leg (12) of the fastening profile (8) runs plane parallel to the second leg (13) of the frame work at a distance inside it, and in that bolts (15) extend through the front (14) of the frame work (5) and the base leg (9) and are provided with spacing sleeves (16), which fasten these two parts to each other to a manageable unit.

14. (NEW) The apparatus according to claim 13, wherein the leg (12) of the fastening profile (8) via fastening means (17) supports a printed circuit card (18), on its side, which faces the leg (11) of the frame work, contact means (19) extending from the printed circuit card towards the leg of the frame work and comprising a ribbon, plane parallelly disposed in relation to the front (14) of the frame work, the ribbon comprising electric cables, separated from each other, one for each identification and control device (3), and in that the base leg (9) of the fastening profile supports with its side, which faces the front of the frame work, via fastening means (20) a fastener (21) for permanent magnets (22), which project towards the front of the frame work, one for each identification and control device.

15. (NEW) The apparatus according to claim 14, wherein the front of the frame work has a plurality of holes (23), which correspond to the number of identification and control devices (3), suitably having inwardly bent collars (24), designed to have a guiding effect, in that the front of the frame work is provided with diode lamps (25), connected to the printed circuit card (18) and associated with the holes and designed to indicate e.g. authorization and non-authorization, when an identification and control device (3) has been fully inserted.

16. (NEW) The apparatus according to claim 12, wherein the pin-like shell (26) of the identification and control devices (3) is made of a light metal, the outer end (27) of the shell (26) preferably being pointed like a wedge and provided with a through hole (28) across it, designed to receive a key ring (29), to which one or several keys can be fastened, in that the shell (26) comprises two parts, a front inner part (30) and a rear outer part (31), in that the end sides (32, 33) of the two parts, designed in this way, which end sides face each other, each are provided with a cylindrical recess (34 and 35, respectively), designed to receive a carrier (63) made of an electrically isolating material, e.g. a plastic material, in that the carrier has a substantially cylindrical shape and fits with press fit with the respective ends into a respective recess, cavities (37

and 38, respectively) being left, designed to receive e.g. screw-shaped electrically conductive compression springs (39, 40), in that around the center of the shell a flange (41) extends, which separated the ends of the parts (30, 31) from each other and consequently is an electrically isolating flange, in that a compression spring abuts each end of the printed circuit card (42) with one of its ends, the other end of the compression springs abutting the respective bottom of the recesses (34, 35), and in that the end of each device (3), which is the front end in the insertion direction, receives in a recess (44) a steel washer (45), designed to cooperate with one of the permanent magnets via the ribbon (19) and an electric cable in it.

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